NO L# DEFINED

=> d acc ab 5117126

US PAT NO: 5,117,126 [IMAGE AVAILABLE] ANS: 1

ABSTRACT:
A stacked OPO is disclosed wherein two or more optically nonlinear media, such as crystals, are coaxilly disposed in a single resonator. Incident radiation is coupled into the resonator, and causes parametric oscillations of the two crystals. The two crystals are independently tuned, such as by angular orientation, to produce distinct components of secondary radiation. A first one of the crystals is disposed nearer to the source of incident radiation, and a second one of the crystals is disposed nearer to the output coupler of the resonator. This causes the first crystal to experience a greater effective gain. Furthermore, the secondary radiation from the first crystal will tend to dominate and "seed" the secondary radiation from the

US PAT NO: 5,117,126 [IMAGE AVAILABLE] ANS: 1
second crystal, when their bandwidths are narrowly separated. The dominance of the first crystal is controlled in various ways: 1) by shortening the length of the first crystal, 2) by differential bevelling of the first crystal with respect to the optical axis of the resonator, or 3) by detuning the output coupling mirror of the resonator with respect to the output of the first crystal. Either method effectively balances the effective gains of the two crystals so that two, independently tunable and efficient signal frequencies can be achieved. Seeding the OPO stack is also disclosed. Alternate techniques of seeding include the use of a tunable diode laser, a second low power OPO and a second OPO using a Faraday Anomalous Dispersion Optical Filter (FADOF). Techniques for angle tuning the OPO stack and compensating for walkoff are disclosed.

=> d acc kwic 5117126

'KWIC' IS NOT A VALID FORMAT
ENTER DISPLAY FORMAT (CIT):

1. 5,117,126, May 26, 1992, Stacked optical parametric oscillator; Allen R. Geiger, 359/330; 307/424; 359/328; 372/21, 22 [IMAGE AVAILABLE]

=> log y
U.S. Patent & Trademark Office LOGOFF AT 11:00:40 ON 23 OCT 92

US PAT NO: 5,140,043 [IMAGE AVAILABLE] L10: 1 of 1

CLMS(38)
38. A method of preventing damage to skin by ultraviolet light comprising the step of applying a topical composition to the skin consisting essentially of from at least about 1% ascorbic. . .

CLAIMS:

CLMS(40)

40. A method of treating damage to skin by ultraviolet light comprising the step of applying a topical composition to the skin consisting essentially of from at least about 1% ascorbic. . .
23 OCT 92 10:54:19 U.S. Patent & Trademark Office P0046

US PAT NO: 5,140,043 [IMAGE AVAILABLE] L10: 1 of 1

CLMS(40)

CLAIMS:

CLMS(42)

42. A method of retarding damage to skin by ultraviolet light which comprises applying a topical composition to the skin containing at least about 1% ascorbic acid (w/v) in water and. . .

=> d ab 15 48

US PAT NO: 4,177,202 L5: 48 of 72
23 OCT 92 10:55:07 U.S. Patent & Trademark Office P0047

US PAT NO: 4,177,202 L5: 48 of 72

ABSTRACT:
Light gases rich in methane and ethane are produced from synthesis gas by contacting a CO reducing component of molybdena alone or in combination with an element selected from the group consisting of cobalt and vanadium distributed on a support of alumina or silica/alumina. The presence of hydrogen sulfide in the syngas feed enhances the activity and selectivity for the catalysts to produce ethane rich light gases.

=> d ab 15 71

US PAT NO: 3,617,936 L5: 71 of 72

ABSTRACT:
A singly resonant optical parametric oscillator (SRO) is pumped
23 OCT 92 10:55:34 U.S. Patent & Trademark Office P0048

US PAT NO: 3,617,936 L5: 71 of 72
by a high power, pulsed source and is tuned approximately to a predetermined desired frequency. Radiation of that frequency is injected into a mode of the SRO from a stabilized, low-power injection source. The output of the SRO is a pulsed, high-power signal with frequency equal to the predetermined frequency to a high degree of accuracy.

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d ab 15 6
23 OCT 92 10:58:57 U.S. Patent & Trademark Office P0003

(FILE 'USPAT' ENTERED AT 10:37:04 ON 23 OCT 92)
SET PAGELENGTH 19
SET LINELENGTH 78
L1 0 S OPTICAL(W) PARAMETRIC(W) OSCILLATOR(W) LASER
L2 49 S OPTICAL PARAMETRIC OSCILLATOR
L3 302 S (L2 OR METHANE(W) CONVERSION)
L4 0 S L2 AND METHANE CONVERSION
L5 72 S (L2 OR ETHANE(W) PRODUCTION)
L6 0 S L2 AND ETHANE PRODUCTION
L7 2 S L2 AND 204*?/CCLS
L8 2 S L5 AND 204*?/CCLS
L9 0 S ETHANE PRODUCTION USING LASER
L10 1 S ETHANE PRODUCTION AND ULTRAVIOLET(W) LIGHT
23 OCT 92 10:53:19 U.S. Patent & Trademark Office P0042

=> d ab l10 1

US PAT NO: 5,140,043 [IMAGE AVAILABLE] L10: 1 of 1

ABSTRACT:
Stable topical aqueous compositions are provided containing a concentration of L-ascorbic acid above about 1% (W/V) and maintaining a pH below about 3.5.

=> d kwic l10

US PAT NO: 5,140,043 [IMAGE AVAILABLE] L10: 1 of 1

SUMMARY:

BSUM(3)

10:53:57 U.S. Patent & Trademark Office P0043

US PAT NO: 5,140,043 [IMAGE AVAILABLE] L10: 1 of 1

BSUM(3)
L-ascorbic . . . and Tappel, "The Effect of Vitamin C on in vivo Lipid Peroxidation in Guinea Pigs as Measured by Pentane and Ethane Production, Lipids

SUMMARY:

BSUM(18)

We . . . that about 2.5. Such a composition appears to allow ready penetration into the skin and retards the damage caused by Ultraviolet light.
23 OCT 92 10:54:04 U.S. Patent & Trademark Office P0044

US PAT NO: 5,140,043 [IMAGE AVAILABLE] L10: 1 of 1

BSUM(18)

CLAIMS:

CLMS(32)

32. A method of retarding damage to skin by Ultraviolet light which comprises applying a topical composition on the skin consisting essentially of at least about 1% ascorbic acid (w/v) in. . .

CLAIMS:

CLMS(38)

10:54:11 U.S. Patent & Trademark Office P0045

CLMS(11)

US PAT NO: 4,433,193 L5: 35 of 72

CLMS(11)
11. The process of claim 1, wherein the residence time in the reaction zone is less than 1 second.

CLMS(12)

12. The process of claim 1, wherein the aromatic hydrocarbon is preheated to a temperature of at least 1100.degree. F. before introduction to the reactor zone.

CLMS(13)

13. The process of claim 12 wherein the hydrogen is preheated to at least 1100.degree. F. before introduction to the reactor zone.

US PAT NO: 4,433,193 L5: 35 of 72

CLMS(13)

CLMS(14)

14. The process of claim 13, wherein the hydrogen is admixed with the aromatic hydrocarbon in the reactor zone.

CLMS(15)

15. The process of claim 1, wherein the feedstock hydrocarbon comprises non-alkylated aromatics.

CLMS(16)

US PAT NO: 4,433,193 L5: 35 of 72

CLMS(16)
16. The process of claim 1 comprising the further step of producing a portion of the hydrogen from methane produced in the hydrogasification reaction.

CLMS(17)

17. The process of claim 1 further comprising the step of producing a portion of the hydrogen from the polyaromatics produced in the hydrogasification reaction.

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US PAT NO: 4,433,193 L5: 35 of 72

CLMS(1)
(c) discharging the resultant ethane-containing reaction product from said zone; and
(d) immediately cooling said product.

CLMS(2)

2. The process of claim 1, wherein the reactor zone comprises a fluidized bed of inert solids.

CLMS(3)

3. The process of claim 1, wherein the feedstock hydrocarbons are at least 40 mole percent aromatic.
23 OCT 92 10:50:20 U.S. Patent & Trademark Office P0034

US PAT NO: 4,433,193 L5: 35 of 72

CLMS(3)

CLMS(4)

4. The process of claim 1 comprising the further step of adding methane to the hydrogen.

CLMS(5)

5. The process of claim 1 comprising the further step of adding methane to the hydrogen in the hydrogenating gas in amounts in the order of about 25 molar percent to about 75 molar percent based on the total amount of hydrogen.
23 OCT 92 10:50:27 U.S. Patent & Trademark Office P0035

US PAT NO: 4,433,193 L5: 35 of 72

CLMS(6)

6. The process of claim 1, wherein the reaction zone is essentially isothermal.

CLMS(7)

7. The process of claim 1, wherein the feedstock in the reaction zone is heated essentially exclusively through heat of reaction of said feedstock.

CLMS(8)

8. The process of claim 1, wherein the residence time is less than about 3 seconds.
23 OCT 92 10:50:35 U.S. Patent & Trademark Office P0036

US PAT NO: 4,433,193 L5: 35 of 72

CLMS(8)

CLMS(9)

9. The process of claim 1 , wherein the temperature in the reaction zone is between 1200.degree. and 1500.degree. F.

CLMS(10)

10. The process of claim 1, wherein the pressure in the reaction zone is between 500 to 2000 psia.

US PAT NO: 3,617,764 [IMAGE AVAILABLE] L5: 72 of 72
TITLE: FAR INFRARED WAVE GENERATOR OR MIXER

=> d ab 15 35

US PAT NO: 4,433,193 L5: 35 of 72

ABSTRACT:
An improved process for producing ethane from aromatic hydrocarbons is described. Hydrogen and the hydrocarbons are introduced into a catalytically inert reactor zone and are reacted under closely controlled conditions which provide an enhanced yield of ethane.
23 OCT 92 10:49:08 U.S. Patent & Trademark Office P0030

US PAT NO: 4,433,193 L5: 35 of 72

=> d kwic 15 35

US PAT NO: 4,433,193 L5: 35 of 72

DETDESC:

DETD(4)

An . . . both the feedstock employed and in the manner in which the reaction is carried out. In accordance with this invention, ethane production is maximized with an accompanying and unexpected decrease in in coking. Moreover, this is accomplished without the need of a. . .
23 OCT 92 10:49:34 U.S. Patent & Trademark Office P0031

US PAT NO: 4,433,193 L5: 35 of 72

DETD(4)

DETDESC:

DETD(38)

These results show the markedly increasing selectivity of ethane production encountered at shorter residence times in accordance with the process.

=> d clms 15 35

US PAT NO: 4,433,193 L5: 35 of 72
23 OCT 92 10:50:04 U.S. Patent & Trademark Office P0032

US PAT NO: 4,433,193 L5: 35 of 72

CLAIMS:

CLMS(1)

We claim:

1. A process for the production of ethane comprising:
(a) introducing a feedstock comprising mainly aromatic hydrocarbons and hydrogen into a non-catalytic reactor zone, the amount of hydrogen being between 1 and 4 times the stoichiometric requirement to convert all carbon in said feedstock into methane;
(b) reacting said feedstock at a temperature between 1100.degree. and 1600.degree. F. and pressure between 300 and 2500 psia for less than 240 seconds;
23 OCT 92 10:50:13 U.S. Patent & Trademark Office P0033

US PAT NO: 3,984,190 L5: 55 of 72
TITLE: Simultaneous transmission of periodic spectral components by plural interferometric means

US PAT NO: 3,982,207 L5: 56 of 72
TITLE: Quantum effects in heterostructure lasers

US PAT NO: 3,934,210 [IMAGE AVAILABLE] L5: 57 of 72
TITLE: Tuning apparatus for an optical oscillator

US PAT NO: 3,914,618 [IMAGE AVAILABLE] L5: 58 of 72
23 OCT 92 10:47:42 U.S. Patent & Trademark Office P0026

US PAT NO: 3,914,618 [IMAGE AVAILABLE] L5: 58 of 72
TITLE: TWO-PHOTON PUMPED FREQUENCY CONVERTER AND METHOD

US PAT NO: 3,907,920 L5: 59 of 72
TITLE: Two-stage hydropyrolysis-cracking process for producing ethylene

US PAT NO: 3,843,258 L5: 60 of 72
TITLE: DUAL BEAM ABSORPTION TYPE OPTICAL SPECTROMETER

US PAT NO: 3,792,287 [IMAGE AVAILABLE] L5: 61 of 72
TITLE: NON-LINEAR OPTICAL CRYSTAL AND DEVICES

US PAT NO: 3,719,411 [IMAGE AVAILABLE] L5: 62 of 72
23 OCT 92 10:47:52 U.S. Patent & Trademark Office P0027

US PAT NO: 3,719,411 [IMAGE AVAILABLE] L5: 62 of 72
TITLE: CONTINUOUS COUPLING OF TUNABLE OR BROAD BAND RADIATION INTO THIN FILM WAVEGUIDES

US PAT NO: 3,697,888 [IMAGE AVAILABLE] L5: 63 of 72
TITLE: EVANESCENT WAVE COUPLING TECHNIQUE FOR BEAM SHAPING

US PAT NO: 3,697,185 L5: 64 of 72
TITLE: METHOD AND APPARATUS FOR THE TIME SHARING OF MULTIPLE CHANNEL ANALYSIS MEANS

US PAT NO: 3,675,039 [IMAGE AVAILABLE] L5: 65 of 72
TITLE: COHERENT OPTICAL DEVICES EMPLOYING ZINC GERMANIUM PHOSPHIDE

US PAT NO: 3,662,183 L5: 66 of 72
23 OCT 92 10:48:03 U.S. Patent & Trademark Office P0028

US PAT NO: 3,662,183 L5: 66 of 72
TITLE: CONTINUOUSLY TUNABLE OPTICAL PARAMETRIC OSCILLATOR

US PAT NO: 3,655,993 [IMAGE AVAILABLE] L5: 67 of 72
TITLE: OPTICALLY ROTATORY DIELECTRIC-GUIDED PARAMETRIC OSCILLATORS

US PAT NO: 3,654,482 L5: 68 of 72
TITLE: MIRRORLESS OPTICAL CAVITY

US PAT NO: 3,628,186 L5: 69 of 72
TITLE: PARAMETRIC OSCILLATOR WITH NONRESONANT SIGNAL

US PAT NO: 3,628,182 [IMAGE AVAILABLE] L5: 70 of 72
TITLE: RING-TYPE PARAMETRIC OSCILLATOR
23 OCT 92 10:46:13 U.S. Patent & Trademark Office P0029

US PAT NO: 3,617,936 L5: 71 of 72
TITLE: FREQUENCY CONTROL OF A PULSED PARAMETRIC OSCILLATOR BY RADIATION INJECTION

US PAT NO: 4,411,520 L5: 37 of 72
TITLE: Light dispersion measuring apparatus

US PAT NO: 4,405,869 [IMAGE AVAILABLE] L5: 38 of 72
TITLE: Optical parametrons

US PAT NO: 4,404,124 L5: 39 of 72
TITLE: Selective hydrogenation catalyst

US PAT NO: 4,394,623 [IMAGE AVAILABLE] L5: 40 of 72
TITLE: Ring cavity for a raman capillary waveguide amplifier
23 OCT 92 10:47:02 U.S. Patent & Trademark Office P0022

US PAT NO: 4,382,660 [IMAGE AVAILABLE] L5: 41 of 72
TITLE: Optical transistors and logic circuits embodying the same

US PAT NO: 4,381,923 [IMAGE AVAILABLE] L5: 42 of 72
TITLE: Isotope separation with an infrared laser

US PAT NO: 4,349,907 [IMAGE AVAILABLE] L5: 43 of 72
TITLE: Broadly tunable picosecond IR source

US PAT NO: 4,222,011 [IMAGE AVAILABLE] L5: 44 of 72
TITLE: Stokes injected Raman capillary waveguide amplifier

US PAT NO: 4,213,060 L5: 45 of 72
TITLE: Tunable infrared source employing Raman mixing
23 OCT 92 10:47:12 U.S. Patent & Trademark Office P0023

US PAT NO: 4,189,652 L5: 46 of 72
TITLE: Beam splitter coupled CDSE optical parametric oscillation

US PAT NO: 4,180,751 L5: 47 of 72
TITLE: Mode-locked optical parametric oscillation apparatus

US PAT NO: 4,177,202 L5: 48 of 72
TITLE: Methanation of synthesis gas

US PAT NO: 4,157,949 L5: 49 of 72
TITLE: Catalytic process for treating light gasoline stocks

US PAT NO: 4,146,504 L5: 50 of 72
23 OCT 92 10:47:21 U.S. Patent & Trademark Office P0024

US PAT NO: 4,146,504 L5: 50 of 72
TITLE: Porous powders and a method for their preparation

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L5: 51 of 72
TITLE: Method and apparatus for separating uranium isotopes

US PAT NO: 4,012,457 L5: 52 of 72
TITLE: Thermal cracking method for the production of ethylene and propylene in a molten metal bath

US PAT NO: 4,005,937 L5: 53 of 72
TITLE: Simultaneous interferometric transmission of periodic spectral components

US PAT NO: 3,999,854 L5: 54 of 72
23 OCT 92 10:47:32 U.S. Patent & Trademark Office P0025

US PAT NO: 3,999,854 L5: 54 of 72
TITLE: Simultaneous interferometric transmission of periodic spectral components

TITLE: Electro-optic line narrowing of optical parametric oscillators

US PAT NO: 5,026,938 [IMAGE AVAILABLE] L5: 19 of 72
TITLE: Process for upgrading light apparatus

US PAT NO: 5,017,806 [IMAGE AVAILABLE] L5: 20 of 72
TITLE: Broadly tunable high repetition rate femtosecond optical parametric oscillator

US PAT NO: 4,950,828 [IMAGE AVAILABLE] L5: 21 of 72
TITLE: Process for upgrading light paraffins
23 OCT 92 10:46:22 U.S. Patent & Trademark Office P0018

US PAT NO: 4,946,813 [IMAGE AVAILABLE] L5: 22 of 72
TITLE: Catalysts for upgrading light paraffins

US PAT NO: 4,946,812 [IMAGE AVAILABLE] L5: 23 of 72
TITLE: Catalyst for upgrading light paraffins

US PAT NO: 4,891,463 L5: 24 of 72
TITLE: Aromatization of aliphatics over a zeolite containing framework gallium

US PAT NO: 4,808,763 L5: 25 of 72
TITLE: Process for upgrading light paraffins

US PAT NO: 4,806,701 L5: 26 of 72
TITLE: Process for upgrading light paraffins
23 OCT 92 10:46:32 U.S. Patent & Trademark Office P0019

US PAT NO: 4,720,453 L5: 27 of 72
TITLE: Detecting environmental pollutants with protoplasts in alginate matrix

US PAT NO: 4,639,923 [IMAGE AVAILABLE] L5: 28 of 72
TITLE: optical parametric oscillator using urea crystal

US PAT NO: 4,629,290 [IMAGE AVAILABLE] L5: 29 of 72
TITLE: Liquid crystal compounds and method of preparation

US PAT NO: H 15 L5: 30 of 72
TITLE: Broadband source of picosecond radiation

US PAT NO: 4,558,923 [IMAGE AVAILABLE] L5: 31 of 72
23 OCT 92 10:46:42 U.S. Patent & Trademark Office P0020

US PAT NO: 4,558,923 [IMAGE AVAILABLE] L5: 31 of 72
TITLE: Picosecond bistable optical switch using two-photon transitions

US PAT NO: 4,493,764 L5: 32 of 72
TITLE: Separately supported polymetallic reforming catalyst

US PAT NO: 4,484,015 L5: 33 of 72
TITLE: Selective hydrogenation

US PAT NO: 4,477,590 L5: 34 of 72
TITLE: Separately supported polymetallic reforming catalyst

US PAT NO: 4,433,193 L5: 35 of 72
TITLE: Process for the production of ethane
23 OCT 92 10:46:52 U.S. Patent & Trademark Office P0021

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L5: 36 of 72
TITLE: Laser-assisted isotope separation of tritium

US PAT NO: 5,144,630 [IMAGE AVAILABLE] L5: 1 of 72
TITLE: Multiwavelength solid state laser using frequency conversion techniques

US PAT NO: 5,144,629 [IMAGE AVAILABLE] L5: 2 of 72
TITLE: Method and apparatus for laser tuning

US PAT NO: 5,140,043 [IMAGE AVAILABLE] L5: 3 of 72
TITLE: Stable ascorbic acid compositions

US PAT NO: 5,134,622 [IMAGE AVAILABLE] L5: 4 of 72
TITLE: Diode-pumped optical parametric oscillator

US PAT NO: 5,128,293 [IMAGE AVAILABLE] L5: 5 of 72
TITLE: Catalyst for upgrading light paraffins

US PAT NO: 5,117,126 [IMAGE AVAILABLE] L5: 6 of 72
TITLE: Stacked optical parametric oscillator

US PAT NO: 5,114,565 [IMAGE AVAILABLE] L5: 7 of 72
TITLE: Reforming naphtha with boron-containing large-pore zeolites

US PAT NO: 5,079,445 [IMAGE AVAILABLE] L5: 8 of 72
TITLE: High output coupling cavity design for optical parametric oscillators

US PAT NO: 5,070,260 [IMAGE AVAILABLE] L5: 9 of 72
TITLE: Ultrahigh-resolution optical parametric oscillator frequency measurement and synthesis system

US PAT NO: 5,066,291 [IMAGE AVAILABLE] L5: 10 of 72
TITLE: Solid-state laser frequency conversion system

US PAT NO: 5,065,046 [IMAGE AVAILABLE] L5: 11 of 72
TITLE: Method and apparatus for parametric generation of midinfrared light in KNbO.sub.3

US PAT NO: 5,053,641 [IMAGE AVAILABLE] L5: 12 of 72
TITLE: Tunable optical parametric oscillator

US PAT NO: 5,052,806 [IMAGE AVAILABLE] L5: 13 of 72

US PAT NO: 5,052,806 [IMAGE AVAILABLE] L5: 13 of 72
TITLE: Apparatus for measuring non-absorptive scattering

US PAT NO: 5,047,668 [IMAGE AVAILABLE] L5: 14 of 72
TITLE: Optical walkoff compensation in critically phase-matched three-wave frequency conversion systems

US PAT NO: 5,043,306 [IMAGE AVAILABLE] L5: 15 of 72
TITLE: Catalysts for upgrading light paraffins

US PAT NO: 5,034,951 [IMAGE AVAILABLE] L5: 16 of 72
TITLE: Femtosecond ultraviolet laser using ultra-thin beta barium borate

US PAT NO: 5,033,057 [IMAGE AVAILABLE] L5: 17 of 72

US PAT NO: 5,033,057 [IMAGE AVAILABLE] L5: 17 of 72
TITLE: Pump steering mirror cavity

US PAT NO: 5,028,816 [IMAGE AVAILABLE] L5: 18 of 72

One such process involves the steps of (1) catalytic exchange of a deuterium-bearing molecule XYD with tritiated water DTO from sources such as a heavy water fission reactor, to produce the tritium-bearing working molecules XYT and (2) photoselective dissociation of XYT to form a tritium-rich product. By an analogous procedure, tritium is separated from tritium-bearing materials that contain predominately hydrogen such as a light water coolant from fission or fusion reactors.

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L8: 2 of 2
23 OCT 92 10:44:37 U.S. Patent & Trademark Office P0011

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L8: 2 of 2

ABSTRACT:
A uranium compound in the solid phase (uranium borohydride four) is subjected to radiation of a first predetermined frequency that excites the uranium-235 isotope-bearing molecules but not the uranium-238 isotope-bearing molecules. The compound is simultaneously subjected to radiation of a second predetermined frequency which causes the excited uranium-235 isotope-bearing molecules to chemically decompose but which does not affect the uranium-238 isotope-bearing molecules. Sufficient heat is then applied to the irradiated compound in the solid phase to vaporize the non-decomposed uranium-238 isotope-bearing molecules but not the decomposed uranium-235 isotope-bearing molecules, thereby physically separating the uranium-235 isotope-bearing molecules from the uranium-238 isotope-bearing molecules.
The uranium compound sample in the solid phase is deposited or grown in an elongated tube supported within a dewar vessel having a clear optical path
23 OCT 92 10:44:50 U.S. Patent & Trademark Office P0012

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L8: 2 of 2
tail section surrounded by a coolant. Two sources of radiation are focused on the uranium compound sample. A heating element is attached to the elongated tube to vaporize the irradiated compound.

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d ti l5 1-72

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L7: 1 of 2

ABSTRACT:
Methods for laser-assisted isotope separation of tritium, using infrared multiple photon dissociation of tritium-bearing products in the gas phase. One such process involves the steps of (1) catalytic exchange of a deuterium-bearing molecule XYD with tritiated water DTO from sources such as

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L7: 1 of 2
a heavy water fission reactor, to produce the tritium-bearing working molecules XYT and (2) photoselective dissociation of XYT to form a tritium-rich product. By an analogous procedure, tritium is separated from tritium-bearing materials that contain predominately hydrogen such as a light water coolant from fission or fusion reactors.

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L7: 2 of 2

ABSTRACT:
A uranium compound in the solid phase (uranium borohydride four) is subjected to radiation of a first predetermined frequency that excites the uranium-235 isotope-bearing molecules but not the uranium-238 isotope-bearing molecules. The compound is simultaneously subjected to radiation of a second predetermined frequency which causes the excited uranium-235 isotope-bearing molecules to chemically decompose but which does not affect the uranium-238

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L7: 2 of 2
isotope-bearing molecules. Sufficient heat is then applied to the irradiated compound in the solid phase to vaporize the non-decomposed uranium-238 isotope-bearing molecules but not the decomposed uranium-235 isotope-bearing molecules, thereby physically separating the uranium-235 isotope-bearing molecules from the uranium-238 isotope-bearing molecules.
The uranium compound sample in the solid phase is deposited or grown in an elongated tube supported within a dewar vessel having a clear optical path tail section surrounded by a coolant. Two sources of radiation are focused on the uranium compound sample. A heating element is attached to the elongated tube to vaporize the irradiated compound.

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=> d his

     (FILE 'USPAT' ENTERED AT 10:37:04 ON 23 OCT 92)
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                SET PAGELENGTH 19
                SET LINELENGTH 78
L1              0 S OPTICAL(W) PARAMETRIC(W) OSCILLATOR(W) LASER
L2             49 S OPTICAL PARAMETRIC OSCILLATOR
L3            302 S (L2 OR METHANE(W) CONVERSION)
L4              0 S L2 AND METHANE CONVERSION
L5             72 S (L2 OR ETHANE(W) PRODUCTION)
L6              0 S L2 AND ETHANE PRODUCTION
L7              2 S L2 AND 204*?/CCLS

=> s l5 and 204*?/ccls
          39104 204*?/CCLS
                (204/?/CCLS)
L8              2 L5 AND 204*?/CCLS

=> d ab l8 1-2
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US PAT NO: 4,411,755 [IMAGE AVAILABLE] L8: 1 of 2

ABSTRACT:
Methods for laser-assisted isotope separation of tritium, using infrared multiple photon dissociation of tritium-bearing products in the gas phase.

=> d acc ab 5117126

US PAT NO: 5,117,126 [IMAGE AVAILABLE] ANS: 1

ABSTRACT:
A stacked OPO is disclosed wherein two or more optically nonlinear media, such as crystals, are coaxilly disposed in a single resonator. Incident radiation is coupled into the resonator, and causes parametric oscillations of the two crystals. The two crystals are independently tuned, such as by angular orientation, to produce distinct components of secondary radiation. A first one of the crystals is disposed nearer to the source of incident radiation, and a second one of the crystals is disposed nearer to the output coupler of the resonator. This causes the first crystal to experience a greater effective gain. Furthermore, the secondary radiation from the first crystal will tend to dominate and "seed" the secondary radiation from the

23 OCT 92 10:59:34 U.S. Patent & Trademark Office P0004

US PAT NO: 5,117,126 [IMAGE AVAILABLE] ANS: 1

second crystal, when their bandwidths are narrowly separated. The dominance of the first crystal is controlled in various ways: 1) by shortening the length of the first crystal, 2) by differential bevelling of the first crystal with respect to the optical axis of the resonator, or 3) by detuning the output coupling mirror of the resonator with respect to the output of the first crystal. Either method effectively balances the effective gains of the two crystals so that two, independently tunable and efficient signal frequencies can be achieved. Seeding the OPO stack is also disclosed. Alternate techniques of seeding include the use of a tunable diode laser, a second low power OPO and a second OPO using a Faraday Anomalous Dispersion Optical Filter (FADOF). Techniques for angle tuning the OPO stack and compensating for walkoff are disclosed.

=> d acc kwic 5117126
23 OCT 92 11:00:17 U.S. Patent & Trademark Office P0005
'KWIC' IS NOT A VALID FORMAT
ENTER DISPLAY FORMAT (CIT):

1. 5,117,126, May 26, 1992, Stacked optical parametric oscillator; Allen R. Geiger, 359/330; 307/424; 359/328; 372/21, 22 [IMAGE AVAILABLE]

=> log y
U.S. Patent & Trademark Office LOGOFF AT 11:00:40 ON 23 OCT 92

US PAT-NO: 5,140,043 [IMAGE AVAILABLE] L10: 1 of 1

CLMS(38)
38. A method of preventing damage to skin by ultraviolet light comprising the step of applying a topical composition to the skin consisting essentially of from at least about 1% ascorbic. . .

CLAIMS:

CLMS(40)

40. A method of treating damage to skin by ultraviolet light comprising the step of applying a topical composition to the skin consisting essentially of from at least about 1% ascorbic. . .
23 OCT 92 10:54:19 U.S. Patent & Trademark Office P0046

US PAT NO: 5,140,043 [IMAGE AVAILABLE] L10: 1 of 1

CLMS(40)

CLAIMS:

CLMS(42)

42. A method of retarding damage to skin by ultraviolet light which comprises applying a topical composition to the skin containing at least about 1% ascorbic acid (w/v) in water and. . .

=> d ab 15 48

US PAT NO: 4,177,202 L5: 48 of 72
23 OCT 92 10:55:07 U.S. Patent & Trademark Office P0047

US PAT NO: 4,177,202 L5: 48 of 72

ABSTRACT:
Light gases rich in methane and ethane are produced from synthesis gas by contacting a CO reducing component of molybdena alone or in combination with an element selected from the group consisting of cobalt and vanadium distributed on a support of alumina or silica/alumina. The presence of hydrogen sulfide in the syngas feed enhances the activity and selectivity for the catalysts to produce ethane rich light gases.

=> d ab 15 71

US PAT NO: 3,617,936 L5: 71 of 72

ABSTRACT:
A singly resonant optical parametric oscillator (SRO) is pumped
23 OCT 92 10:55:34 U.S. Patent & Trademark Office P0048

US PAT NO: 3,617,936 L5: 71 of 72
by a high power, pulsed source and is tuned approximately to a predetermined desired frequency. Radiation of that frequency is injected into a mode of the SRO from a stabilized, low-power injection source. The output of the SRO is a pulsed, high-power signal with frequency equal to the predetermined frequency to a high degree of accuracy.

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=> d ab 15 6

SET PAGELENGTH 19
SET LINELENGTH 79
L1 Ø S OPTICAL(W) PARAMETRIC(W) OSCILLATOR(W) LASER
L2 49 S OPTICAL PARAMETRIC OSCILLATOR
L3 3Ø2 S (L2 OR METHANE(W) CONVERSION)
L4 Ø S L2 AND METHANE CONVERSION
L5 72 S (L2 OR ETHANE(W) PRODUCTION)
L6 Ø S L2 AND ETHANE PRODUCTION
L7 2 S L2 AND 2Ø4*?/CCLS
L8 2 S L5 AND 2Ø4*?/CCLS
L9 Ø S ETHANE PRODUCTION USING LASER
L1Ø 1 S ETHANE PRODUCTION AND ULTRAVIOLET(W) LIGHT
23 OCT 92 1Ø:53:19 U.S. Patent & Trademark Office P0042

=> d ab 1Ø 1

US PAT NO: 5,14Ø,Ø43 [IMAGE AVAILABLE] L1Ø: 1 of 1

ABSTRACT:
Stable topical aqueous compositions are provided containing a concentration of L-ascorbic acid above about 1% (W/V) and maintaining a pH below about 3.5.

=> d kwic 1Ø

US PAT NO: 5,14Ø,Ø43 [IMAGE AVAILABLE] L1Ø: 1 of 1

SUMMARY:

BSUM(3)

1Ø:5ØT552 1Ø:53:57 U.S. Patent & Trademark Office P0043

US PAT NO: 5,14Ø,Ø43 [IMAGE AVAILABLE] L1Ø: 1 of 1

BSUM(3)
L-ascorbic . . . and Tappel, "The Effect of Vitamin C on in vivo Lipid Peroxidation in Guinea Pigs as Measured by Pentane and Ethane Production, Lipids

SUMMARY:

BSUM(18)

We . . . that about 2:5. Such a composition appears to allow ready penetration into the skin and retards the damage caused by ultraviolet light.
23 OCT 92 1Ø:54:Ø4 U.S. Patent & Trademark Office P0044

US PAT NO: 5,14Ø,Ø43 [IMAGE AVAILABLE] L1Ø: 1 of 1

BSUM(18)

CLAIMS:

CLMS(32)

32. A method of retarding damage to skin by ultraviolet light which comprises applying a topical composition on the skin consisting essentially of at least about 1% ascorbic acid (w/v) in. . .

CLAIMS:

CLMS(38)

CLMS(11)

23 OCT 92 10:50:41 U.S. Patent & Trademark Office P0037

US PAT NO: 4,433,193 L5: 35 of 72

CLMS(11)
11. The process of claim 1, wherein the residence time in the reaction zone is less than 1 second.

CLMS(12)

12. The process of claim 1, wherein the aromatic hydrocarbon is preheated to a temperature of at least 1100.degree. F. before introduction to the reactor zone.

CLMS(13)

13. The process of claim 12 wherein the hydrogen is preheated to at least 1100.degree. F. before introduction to the reactor zone.

23 OCT 92 10:50:49 U.S. Patent & Trademark Office P0038

US PAT NO: 4,433,193 L5: 35 of 72

CLMS(13)

CLMS(14)

14. The process of claim 13, wherein the hydrogen is admixed with the aromatic hydrocarbon in the reactor zone.

CLMS(15)

15. The process of claim 1, wherein the feedstock hydrocarbon comprises non-alkylated aromatics.

CLMS(16)

23 OCT 92 10:50:56 U.S. Patent & Trademark Office P0039

US PAT NO: 4,433,193 L5: 35 of 72

CLMS(16)
16. The process of claim 1 comprising the further step of producing a portion of the hydrogen from methane produced in the hydrogasification reaction.

CLMS(17)

17. The process of claim 1 further comprising the step of producing a portion of the hydrogen from the polyaromatics produced in the hydrogasification reaction.

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CLMS(1)
(c) discharging the resultant ethane-containing reaction product from said zone; and
(d) immediately cooling said product.

CLMS(2)

2. The process of claim 1, wherein the reactor zone comprises a fluidized bed of inert solids.

CLMS(3)

3. The process of claim 1, wherein the feedstock hydrocarbons are at least 40 mole percent aromatic.
23 OCT 92 10:50:20 U.S. Patent & Trademark Office P0034

US PAT NO: 4,433,193 L5: 35 of 72

CLMS(3)

CLMS(4)

4. The process of claim 1 comprising the further step of adding methane to the hydrogen.

CLMS(5)

5. The process of claim 1 comprising the further step of adding methane to the hydrogen in the hydrogenating gas in amounts in the order of about 25 molar percent to about 75 molar percent based on the total amount of hydrogen.
23 OCT 92 10:50:27 U.S. Patent & Trademark Office P0035

US PAT NO: 4,433,193 L5: 35 of 72

CLMS(6)

6. The process of claim 1, wherein the reaction zone is essentially isothermal.

CLMS(7)

7. The process of claim 1, wherein the feedstock in the reaction zone is heated essentially exclusively through heat of reaction of said feedstock.

CLMS(8)

8. The process of claim 1, wherein the residence time is less than about 3 seconds.
23 OCT 92 10:50:35 U.S. Patent & Trademark Office P0036

US PAT NO: 4,433,193 L5: 35 of 72

CLMS(8)

CLMS(9)

9. The process of claim 1 , wherein the temperature in the reaction zone is between 1200.degree. and 1500.degree. F.

CLMS(10)

10. The process of claim 1, wherein the pressure in the reaction zone is

US PAT NO: 3,617,754 [IMAGE AVAILABLE] L5: 72 of 72
TITLE: FAR INFRARED WAVE GENERATOR OR MIXER

=> d ab 15 35

US PAT NO: 4,433,193 L5: 35 of 72

ABSTRACT:
An improved process for producing ethane from aromatic hydrocarbons is described. Hydrogen and the hydrocarbons are introduced into a catalytically inert reactor zone and are reacted under closely controlled conditions which provide an enhanced yield of ethane.
23 OCT 92 10:49:08 U.S. Patent & Trademark Office P0030

US PAT NO: 4,433,193 L5: 35 of 72

=> d kwic 15 35

US PAT NO: 4,433,193 L5: 35 of 72

DETDESC:

DETD(4)

An . . . both the feedstock employed and in the manner in which the reaction is carried out. In accordance with this invention, ethane production is maximized with an accompanying and unexpected decrease in in coking. Moreover, this is accomplished without the need of a. . .
23 OCT 92 10:49:34 U.S. Patent & Trademark Office P0031

US PAT NO: 4,433,193 L5: 35 of 72

DETD(4)

DETDESC:

DETD(36)

These results show the markedly increasing selectivity of ethane production encountered at shorter residence times in accordance with the process.

=> d clms 15 35

US PAT NO: 4,433,193 L5: 35 of 72
23 OCT 92 10:50:04 U.S. Patent & Trademark Office P0032

US PAT NO: 4,433,193 L5: 35 of 72

CLAIMS:

CLMS(1)

We claim:

1. A process for the production of ethane comprising:
(a) introducing a feedstock comprising mainly aromatic hydrocarbons and hydrogen into a non-catalytic reactor zone, the amount of hydrogen being between 1 and 4 times the stoichiometric requirement to convert all carbon in said feedstock into methane;
(b) reacting said feedstock at a temperature between 1100.degree. and 1600.degree. F. and pressure between 300 and 2500 psia for less than 240 seconds;
23 OCT 92 10:50:13 U.S. Patent & Trademark Office P0033

US PAT NO: 3,984,190 L5: 55 of 72
TITLE: Simultaneous transmission of periodic spectral components by plural interferometric means

US PAT NO: 3,982,207 L5: 56 of 72
TITLE: Quantum effects in heterostructure lasers

US PAT NO: 3,934,210 [IMAGE AVAILABLE] L5: 57 of 72
TITLE: Tuning apparatus for an optical oscillator

US PAT NO: 3,914,618 [IMAGE AVAILABLE] L5: 58 of 72
23 OCT 92 10:47:42 U.S. Patent & Trademark Office P0026

US PAT NO: 3,914,618 [IMAGE AVAILABLE] L5: 58 of 72
TITLE: TWO-PHOTON PUMPED FREQUENCY CONVERTER AND METHOD

US PAT NO: 3,907,920 L5: 59 of 72
TITLE: Two-stage hydropyrolysis-cracking process for producing ethylene

US PAT NO: 3,843,258 L5: 60 of 72
TITLE: DUAL BEAM ABSORPTION TYPE OPTICAL SPECTROMETER

US PAT NO: 3,792,267 [IMAGE AVAILABLE] L5: 61 of 72
TITLE: NON-LINEAR OPTICAL CRYSTAL AND DEVICES

US PAT NO: 3,719,411 [IMAGE AVAILABLE] L5: 62 of 72
23 OCT 92 10:47:52 U.S. Patent & Trademark Office P0027

US PAT NO: 3,719,411 [IMAGE AVAILABLE] L5: 62 of 72
TITLE: CONTINUOUS COUPLING OF TUNABLE OR BROAD BAND RADIATION INTO THIN FILM WAVEGUIDES

US PAT NO: 3,697,888 [IMAGE AVAILABLE] L5: 63 of 72
TITLE: EVANESCENT WAVE COUPLING TECHNIQUE FOR BEAM SHAPING

US PAT NO: 3,697,185 L5: 64 of 72
TITLE: METHOD AND APPARATUS FOR THE TIME SHARING OF MULTIPLE CHANNEL ANALYSIS MEANS

US PAT NO: 3,675,039 [IMAGE AVAILABLE] L5: 65 of 72
TITLE: COHERENT OPTICAL DEVICES EMPLOYING ZINC GERMANIUM PHOSPHIDE

US PAT NO: 3,662,183 L5: 66 of 72
23 OCT 92 10:48:03 U.S. Patent & Trademark Office P0028

US PAT NO: 3,662,183 L5: 66 of 72
TITLE: CONTINUOUSLY TUNABLE OPTICAL PARAMETRIC OSCILLATOR

US PAT NO: 3,655,993 [IMAGE AVAILABLE] L5: 67 of 72
TITLE: OPTICALLY ROTATORY DIELECTRIC-GUIDED PARAMETRIC OSCILLATORS

US PAT NO: 3,654,482 L5: 68 of 72
TITLE: MIRRORLESS OPTICAL CAVITY

US PAT NO: 3,628,186 L5: 69 of 72
TITLE: PARAMETRIC OSCILLATOR WITH NONRESONANT SIGNAL

US PAT NO: 3,628,182 [IMAGE AVAILABLE] L5: 70 of 72
TITLE: RING-TYPE PARAMETRIC OSCILLATOR
23 OCT 92 10:48:13 U.S. Patent & Trademark Office P0029

US PAT NO: 3,617,936 L5: 71 of 72
TITLE: FREQUENCY CONTROL OF A PULSED PARAMETRIC OSCILLATOR BY

TITLE: Light dispersion measuring apparatus

US PAT NO: 4,405,569 [IMAGE AVAILABLE] L5: 38 of 72
TITLE: Optical parametrons

US PAT NO: 4,404,124 L5: 39 of 72
TITLE: Selective hydrogenation catalyst

US PAT NO: 4,394,623 [IMAGE AVAILABLE] L5: 40 of 72
TITLE: Ring cavity for a raman capillary waveguide amplifier
23 OCT 92 10:47:02 U.S. Patent & Trademark Office P0022

US PAT NO: 4,382,660 [IMAGE AVAILABLE] L5: 41 of 72
TITLE: Optical transistors and logic circuits embodying the same

US PAT NO: 4,381,923 [IMAGE AVAILABLE] L5: 42 of 72
TITLE: Isotope separation with an infrared laser

US PAT NO: 4,349,907 [IMAGE AVAILABLE] L5: 43 of 72
TITLE: Broadly tunable picosecond IR source

US PAT NO: 4,222,011 [IMAGE AVAILABLE] L5: 44 of 72
TITLE: Stokes injected Raman capillary waveguide amplifier

US PAT NO: 4,213,060 L5: 45 of 72
TITLE: Tunable infrared source employing Raman mixing
23 OCT 92 10:47:12 U.S. Patent & Trademark Office P0023

US PAT NO: 4,189,652 L5: 46 of 72
TITLE: Beam splitter coupled CDSE [redacted] [redacted]
[redacted]

US PAT NO: 4,180,751 L5: 47 of 72
TITLE: Mode-locked [redacted] [redacted] [redacted]
apparatus

US PAT NO: 4,177,202 L5: 48 of 72
TITLE: Methanation of synthesis gas

US PAT NO: 4,157,949 L5: 49 of 72
TITLE: Catalytic process for treating light gasoline stocks

US PAT NO: 4,146,504 L5: 50 of 72
23 OCT 92 10:47:21 U.S. Patent & Trademark Office P0024

US PAT NO: 4,146,504 L5: 50 of 72
TITLE: Porous powders and a method for their preparation

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L5: 51 of 72
TITLE: Method and apparatus for separating uranium isotopes

US PAT NO: 4,012,457 L5: 52 of 72
TITLE: Thermal cracking method for the production of ethylene and propylene in a molten metal bath

US PAT NO: 4,005,937 L5: 53 of 72
TITLE: Simultaneous interferometric transmission of periodic spectral components

US PAT NO: 3,999,854 L5: 54 of 72
23 OCT 92 10:47:32 U.S. Patent & Trademark Office P0025

US PAT NO: 3,999,854 L5: 54 of 72
TITLE: Simultaneous interferometric transmission of periodic spectral

TITLE: Process for preparation of optical elements

US PAT NO: 5,026,938 [IMAGE AVAILABLE] L5: 19 of 72
TITLE: Process for upgrading light apparatus

US PAT NO: 5,017,806 [IMAGE AVAILABLE] L5: 20 of 72
TITLE: Broadly tunable high repetition rate femtosecond optical parametric oscillator

US PAT NO: 4,950,828 [IMAGE AVAILABLE] L5: 21 of 72
TITLE: Process for upgrading light paraffins
23 OCT 92 10:46:22 U.S. Patent & Trademark Office P0018

US PAT NO: 4,946,813 [IMAGE AVAILABLE] L5: 22 of 72
TITLE: Catalysts for upgrading light paraffins

US PAT NO: 4,946,812 [IMAGE AVAILABLE] L5: 23 of 72
TITLE: Catalyst for upgrading light paraffins

US PAT NO: 4,891,463 L5: 24 of 72
TITLE: Aromatization of aliphatics over a zeolite containing framework gallium

US PAT NO: 4,808,763 L5: 25 of 72
TITLE: Process for upgrading light paraffins

US PAT NO: 4,806,701 L5: 26 of 72
TITLE: Process for upgrading light paraffins
23 OCT 92 10:46:32 U.S. Patent & Trademark Office P0019

US PAT NO: 4,720,453 L5: 27 of 72
TITLE: Detecting environmental pollutants with protoplasts in alginate matrix

US PAT NO: 4,639,923 [IMAGE AVAILABLE] L5: 28 of 72
TITLE: Optical parametric oscillator using urea crystal

US PAT NO: 4,629,290 [IMAGE AVAILABLE] L5: 29 of 72
TITLE: Liquid crystal compounds and method of preparation

US PAT NO: H 15 L5: 30 of 72
TITLE: Broadband source of picosecond radiation

US PAT NO: 4,558,923 [IMAGE AVAILABLE] L5: 31 of 72
23 OCT 92 10:46:42 U.S. Patent & Trademark Office P0020

US PAT NO: 4,558,923 [IMAGE AVAILABLE] L5: 31 of 72
TITLE: Picosecond bistable optical switch using two-photon transitions

US PAT NO: 4,493,764 L5: 32 of 72
TITLE: Separately supported polymetallic reforming catalyst

US PAT NO: 4,484,015 L5: 33 of 72
TITLE: Selective hydrogenation

US PAT NO: 4,477,590 L5: 34 of 72
TITLE: Separately supported polymetallic reforming catalyst

US PAT NO: 4,433,193 L5: 35 of 72
TITLE: Process for the production of ethane
23 OCT 92 10:46:52 U.S. Patent & Trademark Office P0021

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L5: 36 of 72
TITLE: Laser-assisted isotope separation of tritium

TITLE: Multiwavelength solid state laser using frequency conversion techniques

US PAT NO: 5,144,629 [IMAGE AVAILABLE] L5: 2 of 72
TITLE: Method and apparatus for laser tuning

US PAT NO: 5,140,043 [IMAGE AVAILABLE] L5: 3 of 72
TITLE: Stable ascorbic acid compositions

23 OCT 92 10:45:40 U.S. Patent & Trademark Office P0014

US PAT NO: 5,134,622 [IMAGE AVAILABLE] L5: 4 of 72
TITLE: Diode-pumped optical parametric oscillator

US PAT NO: 5,128,293 [IMAGE AVAILABLE] L5: 5 of 72
TITLE: Catalyst for upgrading light paraffins

US PAT NO: 5,117,126 [IMAGE AVAILABLE] L5: 6 of 72
TITLE: Stacked optical parametric oscillator

US PAT NO: 5,114,565 [IMAGE AVAILABLE] L5: 7 of 72
TITLE: Reforming naphtha with boron-containing large-pore zeolites

US PAT NO: 5,079,445 [IMAGE AVAILABLE] L5: 8 of 72
TITLE: High output coupling cavity design for optical parametric oscillators

23 OCT 92 10:45:51 U.S. Patent & Trademark Office P0015

US PAT NO: 5,070,260 [IMAGE AVAILABLE] L5: 9 of 72
TITLE: Ultrahigh-resolution optical parametric oscillator frequency measurement and synthesis system

US PAT NO: 5,066,291 [IMAGE AVAILABLE] L5: 10 of 72
TITLE: Solid-state laser frequency conversion system

US PAT NO: 5,065,046 [IMAGE AVAILABLE] L5: 11 of 72
TITLE: Method and apparatus for parametric generation of midinfrared light in KNbO.sub.3

US PAT NO: 5,053,641 [IMAGE AVAILABLE] L5: 12 of 72
TITLE: Tunable optical parametric oscillator

US PAT NO: 5,052,806 [IMAGE AVAILABLE] L5: 13 of 72
23 OCT 92 10:46:01 U.S. Patent & Trademark Office P0016

US PAT NO: 5,052,806 [IMAGE AVAILABLE] L5: 13 of 72
TITLE: Apparatus for measuring non-absorptive scattering

US PAT NO: 5,047,668 [IMAGE AVAILABLE] L5: 14 of 72
TITLE: Optical walkoff compensation in critically phase-matched three-wave frequency conversion systems

US PAT NO: 5,043,306 [IMAGE AVAILABLE] L5: 15 of 72
TITLE: Catalysts for upgrading light paraffins

US PAT NO: 5,034,951 [IMAGE AVAILABLE] L5: 16 of 72
TITLE: Femtosecond ultraviolet laser using ultra-thin beta barium borate

US PAT NO: 5,033,057 [IMAGE AVAILABLE] L5: 17 of 72
23 OCT 92 10:46:12 U.S. Patent & Trademark Office P0017

US PAT NO: 5,033,057 [IMAGE AVAILABLE] L5: 17 of 72
TITLE: Pump steering mirror cavity

One such process involves (1) catalytic exchange of a deuterium-bearing molecule XYD with tritiated water DTO from sources such as a heavy water fission reactor, to produce the tritium-bearing working molecules XYT and (2) photoselective dissociation of XYT to form a tritium-rich product. By an analogous procedure, tritium is separated from tritium-bearing materials that contain predominately hydrogen such as a light water coolant from fission or fusion reactors.

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L8: 2 of 2
23 OCT 92 10:44:37 U.S. Patent & Trademark Office P0011

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L8: 2 of 2

ABSTRACT:
A uranium compound in the solid phase (uranium borohydride four) is subjected to radiation of a first predetermined frequency that excites the uranium-235 isotope-bearing molecules but not the uranium-238 isotope-bearing molecules. The compound is simultaneously subjected to radiation of a second predetermined frequency which causes the excited uranium-235 isotope-bearing molecules to chemically decompose but which does not affect the uranium-238 isotope-bearing molecules. Sufficient heat is then applied to the irradiated compound in the solid phase to vaporize the non-decomposed uranium-238 isotope-bearing molecules but not the decomposed uranium-235 isotope-bearing molecules, thereby physically separating the uranium-235 isotope-bearing molecules from the uranium-238 isotope-bearing molecules.
The uranium compound sample in the solid phase is deposited or grown in an elongated tube supported within a dewar vessel having a clear optical path
23 OCT 92 10:44:50 U.S. Patent & Trademark Office P0012

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L8: 2 of 2
tail section surrounded by a coolant. Two sources of radiation are focused on the uranium compound sample. A heating element is attached to the elongated tube to vaporize the irradiated compound.

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ABSTRACT:
Methods for laser-assisted isotope separation of tritium, using infrared multiple photon dissociation of tritium-bearing products in the gas phase. One such process involves the steps of (1) catalytic exchange of a deuterium-bearing molecule XYD with tritiated water DTO from sources such as
23 OCT 92 10:42:54 U.S. Patent & Trademark Office P0007

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L7: 1 of 2
a heavy water fission reactor, to produce the tritium-bearing working molecules XYT and (2) photoselective dissociation of XYT to form a tritium-rich product. By an analogous procedure, tritium is separated from tritium-bearing materials that contain predominately hydrogen such as a light water coolant from fission or fusion reactors.

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L7: 2 of 2

ABSTRACT:
A uranium compound in the solid phase (uranium borohydride four) is subjected to radiation of a first predetermined frequency that excites the uranium-235 isotope-bearing molecules but not the uranium-238 isotope-bearing molecules. The compound is simultaneously subjected to radiation of a second predetermined frequency which causes the excited uranium-235 isotope-bearing molecules to chemically decompose but which does not affect the uranium-238
23 OCT 92 10:43:07 U.S. Patent & Trademark Office P0008

US PAT NO: 4,032,419 [IMAGE AVAILABLE] L7: 2 of 2
isotope-bearing molecules. Sufficient heat is then applied to the irradiated compound in the solid phase to vaporize the non-decomposed uranium-238 isotope-bearing molecules but not the decomposed uranium-235 isotope-bearing molecules, thereby physically separating the uranium-235 isotope-bearing molecules from the uranium-238 isotope-bearing molecules.
The uranium compound sample in the solid phase is deposited or grown in an elongated tube supported within a dewar vessel having a clear optical path tail section surrounded by a coolant. Two sources of radiation are focused on the uranium compound sample. A heating element is attached to the elongated tube to vaporize the irradiated compound.

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(FILE 'USPAT' ENTERED AT 10:37:04 ON 23 OCT 92)
23 OCT 92 10:43:31 U.S. Patent & Trademark Office P0009
SET PAGELENGTH 19
SET LINELENGTH 78
L1 0 S OPTICAL(W) PARAMETRIC(W) OSCILLATOR(W) LASER
L2 49 S OPTICAL PARAMETRIC OSCILLATOR
L3 302 S (L2 OR METHANE(W) CONVERSION)
L4 0 S L2 AND METHANE CONVERSION
L5 72 S (L2 OR ETHANE(W) PRODUCTION)
L6 0 S L2 AND ETHANE PRODUCTION
L7 2 S L2 AND 204*?/CCLS

=> s l5 and 204*?/ccls
39104 204*?/CCLS
(204/?/CCLS)
L8 2 L5 AND 204*?/CCLS

=> d ab l8 1-2
23 OCT 92 10:44:26 U.S. Patent & Trademark Office P0010

US PAT NO: 4,411,755 [IMAGE AVAILABLE] L8: 1 of 2

ABSTRACT:
Methods for laser-assisted isotope separation of tritium, using infrared

LEGAL-REP: R. J. Guenther
Arthur J. Torsiglieri

=> d acc leg 5117126

US PAT NO: 5,117,126 [IMAGE AVAILABLE] ANS: 1
DATE ISSUED: May 26, 1992
TITLE: Stacked optical parametric oscillator
INVENTOR: Allen R. Geiger, Las Cruces, NM
ASSIGNEE: La Sen, Inc., Las Cruces, NM (U.S. corp.)
APPL-NO: 07/544,597
DATE FILED: Jun. 27, 1990
ART-UNIT: 251
PRIM-EXMR: Georgia Epps
LEGAL-REP: Kramer, Brufsky & Cifelli

=>

INPUT:

23 OCT 92 11:45:37 U.S. Patent & Trademark Office P0003

US PAT NO: 4,433,193 ANS: 1
DATE ISSUED: Feb. 21, 1984
TITLE: Process for the production of ethane
INVENTOR: Paul E. Koppel, Lexington, MA
Joseph J. Williams, Sudbury, MA
Herman N. Woebcke, Stamford, CT
ASSIGNEE: Stone & Webster Engineering Corp., Boston, MA (U.S. corp.)
APPL-NO: 06/312,157
DATE FILED: Oct. 16, 1981
ART-UNIT: 116
PRIM-EXMR: Delbert E. Gantz
ASST-EXMR: Lance Johnson
LEGAL-REP: Hedman, Gibson, Cassella, Gibson & Costigan

23 OCT 92 11:45:44 U.S. Patent & Trademark Office P0004
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=> d acc leg 3617936

US PAT NO: 3,617,936 ANS: 1
DATE ISSUED: Nov. 2, 1971
TITLE: FREQUENCY CONTROL OF A PULSED PARAMETRIC OSCILLATOR BY RADIATION INJECTION
INVENTOR: John E. Bjorkholm, Middletown, NJ
ASSIGNEE: Bell Telephone Laboratories, Incorporated, Murray Hill, NJ
APPL-NO: 04/827,708
DATE FILED: May 26, 1969
ART-UNIT: 252
PRIM-EXMR: Roy Lake
ASST-EXMR: Darwin R. Hostetter
LEGAL-REP: R. J. Guenther
Arthur J. Torsiglieri
23 OCT 92 11:46:39 U.S. Patent & Trademark Office P0005

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=> d acc leg 5117126

US PAT NO: 5,117,126 [IMAGE AVAILABLE] ANS: 1
DATE ISSUED: May 26, 1992
TITLE: Stacked optical parametric oscillator
INVENTOR: Allen R. Geiger, Las Cruces, NM
ASSIGNEE: La Sen, Inc., Las Cruces, NM (U.S. corp.)
APPL-NO: 07/544,597
DATE FILED: Jun. 27, 1990
ART-UNIT: 251
PRIM-EXMR: Georgia Epps
LEGAL-REP: Kramer, Brufsky & Cifelli

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23 OCT 92 11:45:37 U.S. Patent & Trademark Office P0003

US PAT NO: 4,433,193 ANS: 1
DATE ISSUED: Feb. 21, 1984
TITLE: Process for the production of ethane
INVENTOR: Paul E. Koppel, Lexington, MA
Joseph J. Williams, Sudbury, MA
Herman N. Woebcke, Stamford, CT
ASSIGNEE: Stone & Webster Engineering Corp., Boston, MA (U.S. corp.)
APPL-NO: 06/312,157
DATE FILED: Oct. 16, 1981
ART-UNIT: 116
PRIM-EXMR: Delbert E. Gantz
ASST-EXMR: Lance Johnson
LEGAL-REP: Hedman, Gibson, Cassella, Gibson & Costigan

23 OCT 92 11:45:44 U.S. Patent & Trademark Office P0004
=>

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MESSAGE:
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=> d acc leg 3617936

US PAT NO: 3,617,936 ANS: 1
DATE ISSUED: Nov. 2, 1971
TITLE: FREQUENCY CONTROL OF A PULSED PARAMETRIC OSCILLATOR BY RADIATION INJECTION
INVENTOR: John E. Bjorkholm, Middletown, NJ
ASSIGNEE: Bell Telephone Laboratories, Incorporated, Murray Hill, NJ
APPL-NO: 04/827,708
DATE FILED: May 26, 1969
ART-UNIT: 252
PRIM-EXMR: Roy Lake
ASST-EXMR: Darwin R. Hostetter
LEGAL-REP: R. J. Guenther
Arthur J. Torsiglieri
23 OCT 92 11:46:39 U.S. Patent & Trademark Office P0005
=>

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MESSAGE: